SAM Status

Lee Lueking

D0RACE

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SAM Station Deployment

Distributing Data Across Continents

Lancaster
Imperial College
Nikhef
Lyon
Prague
Fermilab
MSU
Columbia
UT Arlington
enstore

Historical DB
10 / 26 / 01   11 : 18 :

Mass Storage
System

SAM Stations
Active   Inactive

enstore

New Tape Facilities

- ? Sharing STK PowderHorn silo with other lab customers
  - ? have 6-7 x 9940 drives for us.
  - ? 1000 tape slots
  - ? All online data and fnal-farm output going there, 80 tapes so far.
- ? Move next week to our own PowderHorn
  - ? Robot assembled and tested
  - ? Will send all data there starting next week.

- ? Dzero STK PowderHorn silo
  - ? Has 9 x 9940 drives now, up to 20 drives.
  - ? 5500 tape slots total.

Use Existing AML/2 for MC

- ? M2 tapes are all read-only
- ? Have 6 LTO drives.
- ? 100 GB cartridge
- ? Very Reliable in tests so far (1 problem in 30 TB)
- ? All MC and Group generated data is going there. Have written 8 TB so far with no problems.

Storing Group Data in SAM

? Each group has tapes allocated for specific tiers of data: gen, d0gstar, d0sim, reconstructed, root-tuples, others.

? Each group will have a tape allocation limit

? Group data is added with special tier designation "-bygroup" to distinguish it form farm and other production data.

? Groups set up so far include top, higgs, and tauid, bphysics, emid, and np.

SAM Distributed Computing

- Fnal-farm
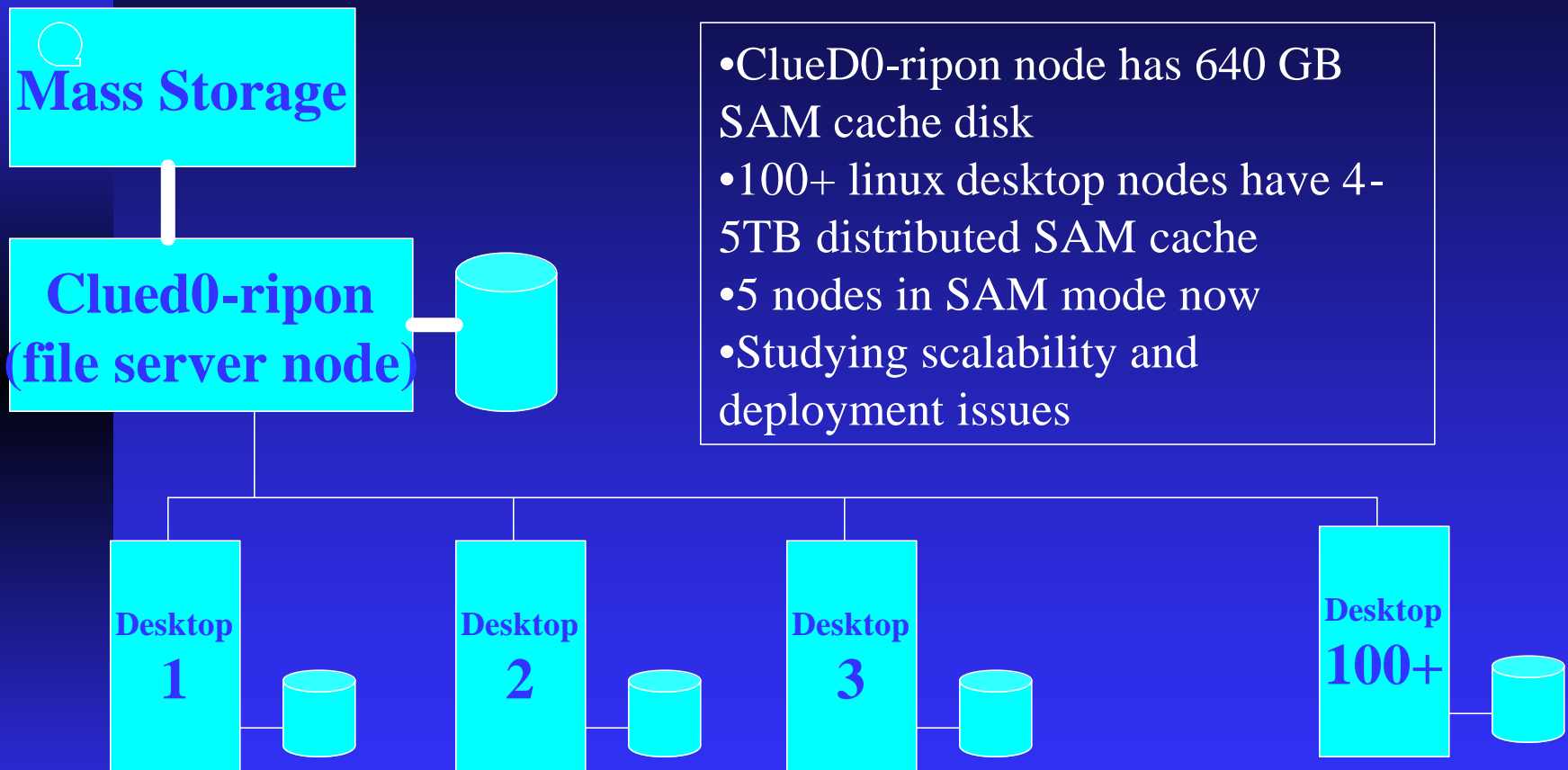- ClueD0

Distributed Reconstruction Farm

•**90 dual processor Linux nodes (growing)**
•**30 GB disk each**
•**100 Mbit ethernet NICs on workers**
•**D0bbin is 4 processor SGI O2000, Gigabit NIC**

Enstore Mass Storage

L2N

•**Major SAM upgrade**
•**Very close to working**

D0bbin Farm Server

In Production
with SAM Station v3_2_18 December 5, 2001

| Worker 1 | Worker 2 | Worker 3 | Worker N |

No disks are cross mounted. Worker nodes get files directly from MSS via encp.
Data is moved by SAM using rcp from where it is cached to where it is needed.

Distributed Analysis Cluster ClueD0

Mass Storage

**Clued0-ripon
(file server node)**

- ClueD0-ripon node has 640 GB SAM cache disk
- 100+ linux desktop nodes have 4-5TB distributed SAM cache
- 5 nodes in SAM mode now
- Studying scalability and deployment issues

Desktop 1

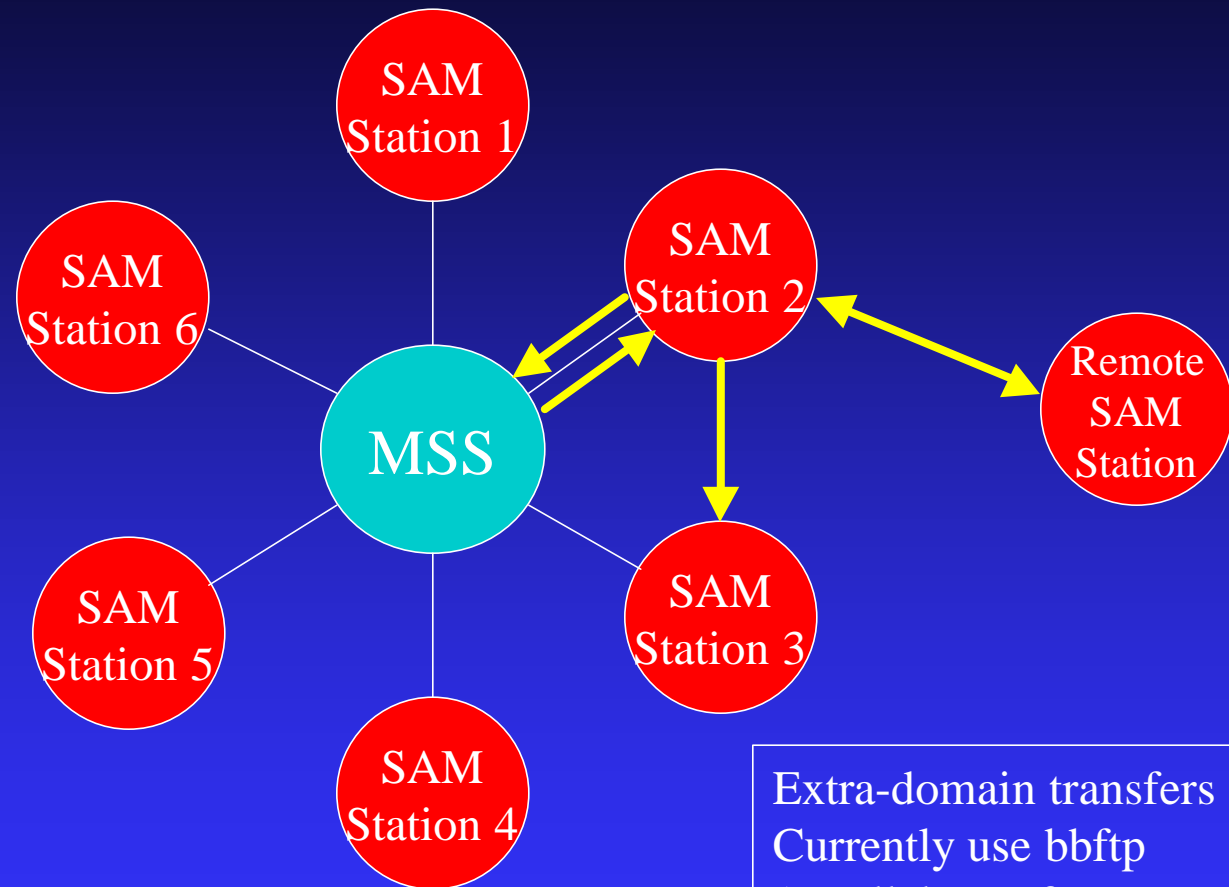**Desktop 2**

Desktop 3

Desktop 100+

All (tape) data enters the ClueD0 station through the main file server node ClueD0-ripon. The station migrates data as needed and manages the cache distributed among the many desktop constituents.

Site and Global Issues

Station Configuration
- Replica location
  - Prefer
  - Avoid
- Forwarding
  - File stores can be forwarded through other stations
- Routing (soon)
  - Can set up routes for replica transfers

SAM Station 1

SAM Station 2

SAM Station 6

Remote SAM Station

MSS

SAM Station 5

SAM Station 3

SAM Station 4

Extra-domain transfers
Currently use bbftp
(parallel transfer protocol)

Workshop Plans for Station Installations

- ? Will help setup remote stations
- ? Beforehand need:
  - ? UPS/UPD
  - ? Station name
  - ? Station admins
  - ? Station node info
  - ? Station disks

Hope To See You All There!